

## ABSTRACT

To increase fresh palm oil fruit production we can improve the fertilisation system. Farmers need to know how the state of their plantation land to determine the appropriate fertiliser. Therefore, in this final project the author designs a soil monitoring system on oil palm land to get recommendations for the time and amount of fertiliser to be used.

In this system, the things that will be considered are moisture, pH, and macro nutrients (N, P, K). The fertiliser dose prediction system is made using NPK 16-16-16 fertiliser in 10 types of soil.

The monitoring system that has been designed has good accuracy with an average overall sensor error value of 0.0432 depending on the elements of N, P, K, pH, or humidity. After testing on 10 soil types with different nutrient content, the fertiliser prediction system has an error value of 0,037.

Keywords : *Monitoring*, fertiliser, pH, moisture, Nitrogen, Phospor, Potassium